Determination of quartz content in a mineral

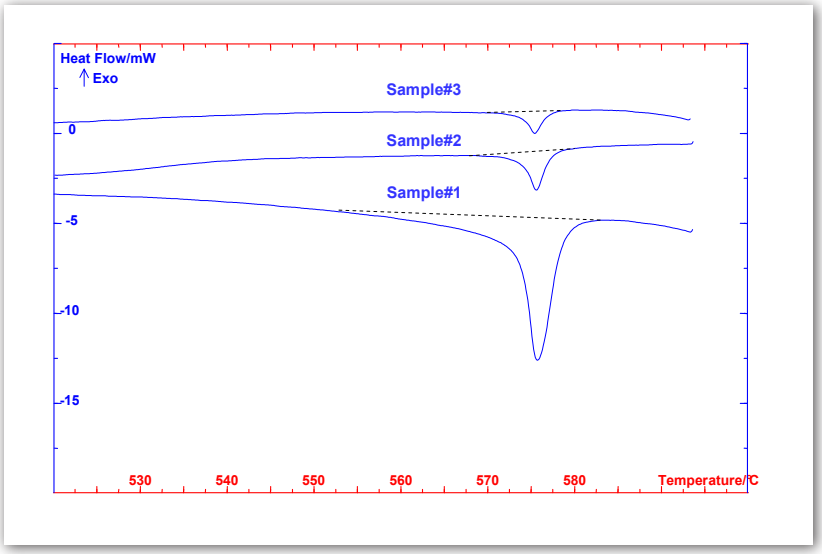
INTRODUCTION

In some industrial activities, the determination of quartz content may be of great importance. It is the case for talc or other inorganic materials where the control of abrasive properties is essential.
For this application, SETLINE DSC is a really appropriate tool as it can analyze materials having low density like talc.

EXPERIMENT

Sample:
Silica containing quartz
Mass:
ca 15 mg
Crucible:
aluminium

Heating mode : 5 K/min
A sample containing 100% of quartz (#1), and different samples (#2 and 3) with unknown content of quartz were analyzed.



RESULTS AND CONCLUSION

When heated, a transition at 573°C was observed it corresponds to the transition of SiO2 from the a to b forms.
By integration of the corresponding peak, the heat of transition can be measured. Then, using the sample#1 as a standard it is possible to determine the quartz contents of sample #2 (= 45%) and sample #3 (= 11%).
This method enables to determine the quartz content of a material down to a few percents.

INSTRUMENT

SETLINE DSC / DSC+

-170 to 700°C

EASY TO USE WITH ROBUST SENSOR TECHNOLOGY
ensuring quality, consistent and reliable data

AVAILABLE WITH HIGH PRESSURE CRUCIBLES
up to 500 bar at 600°C

REASONABLY PRICED INSTRUMENT & SENSOR
for easy, cost effective replacement

LOWER COST OF OWNERSHIP
through simplified maintenance and a Replacement Parts Guarantee

TECHNICAL & APPLICATION SUPPORT
for fast expert help with any questions

CALISTO 2.0 EXCLUSIVE SOFTWARE
for intuitive and easy data handling